1895, divides adenoids into three varieties—the scrofulous, tuberculous, and the syphilitic. It is my opinion that these varieties do not comprise all cases of adenoids. We know that a great number of scrofulous children have adenoids; we know, furthermore, that a great number of children who bear no evidence of scrofulosis or chlorosis have these bodies in their postnasal spaces. We must remember, too, that the presence of hypertrophied and lymphatic tissue in the postnasal space and in the fauces may cause a condition which is hardly distinguishable from scrofulosis or chlorosis, which condition immediately disappears on the removal of the hypertrophied or hyperplastic gland. Koch has observed the reaction of adenoids after the injection of tuberculin, and he has found that a certain percentage show a reaction which we would expect from true tubercular tissue. These adenoids, after removal, heal, just as other cases of adenoids heal, with no reaction, and with no subsequent tuberculosis. George Gottstein, Jr., removed from a girl of 12 a large adenoid mass which showed evidences of tuberculosis, i. e., giant cells, and the like. Another observer examined the girl when 18 years of age, or six years after the operation; she then enjoyed vigorous health and showed no symptoms of tuberculosis in the postnasal space. That these glands do become tubercular there can be no doubt.

Professor Roth has reported a case of tuberculosis of the pharyngeal tonsil which resulted in tubercular infection of the bones beneath, followed by death from tubercular meningitis. A great deal of work has been done on this line by Wendt, E. Frankel, Schlenker, Dmnochowski, and others. Cases of tubercular ulceration resulting from extirpation of the glands have been reported, so that we may assume that the relationship between hyperplastic adenoid tissue and tuberculosis is somewhat close.

Abscesses may develop in this tissue, which may cause septic meningitis. Cysts, and all of the tumors, especially sarcoma, develop from the membrana prevertebralis. The case of a child is reported by Dmnochowski, from whom he removed hyperplastic adenoid tissue four different times, with recurrence after each operation. The child at length died with sarcoma of the dura, and yet after each operation a number of pathologists failed to determine the sarcomatous nature of the tissue.

31 Washington Street.

CONNELL'S OPERATION OF END-TO-END ANASTOMOSIS OF SMALL INTESTINE.

FOR REPAIR OF ENTEROTOMY PERFORMED TO RELIEVE ACUTE OBSTRUCTION.

FIRST CASE REPORTED ON HUMAN SUBJECT.

FRANKLIN H. MARTIN, M.D.

CHICAGO.

W. V. B., admitted to my service April 17, 1900, with the following history: Both parents died of pneumonia; one brother died of epilepsy; one sister died of pulmonary tuberculosis. Has two brothers and two sisters living in good health.

She has had the usual diseases of childhood. Puberty at 13. Menstruation history normal. She has three children. Normal labors, no miscarriages. Last confinement thirteen months prior to her admission into the hospital.

Her puerperium was pathological and for a period of six weeks she had chills and fever, and pain in the pelvis, loosing much flesh and color. At the end of the third month after her confinement she was able to attend to light household duties.

In August, 1899, she entered a hospital and underwent an operation for the repair of a lacerated cervix and perineum. Her general condition improved somewhat after this until December, 1899, at which time she began to lose weight and suffer from pain in the pelvis; she also noticed some enlargement in the right lower part of the abdomen above Poupart's ligament.

She menstruated two months after her last confinement and has been regular every twenty-eight days since, with the exception that there had been none during the six weeks prior to her admission to the hospital.

Physical examination of the pelvis shows the cervix low in the vagina, fundus uteri in retroversion, immovable, flanked with an indurated mass that fills the entire pelvis and extends upward into the abdomen behind Poupart's ligament on the right side.

Examination of her blood shows: Hemoglobin 62 to 65 per cent.; erythrocytes, 3,100,000 per cubic millimeter; leucocytes 118,000 per cubic millimeter, marked leucocytosis being present in this case. Together with the above described condition in the pelvis and marked emaciation, a diagnosis of pelvic abscess is made.

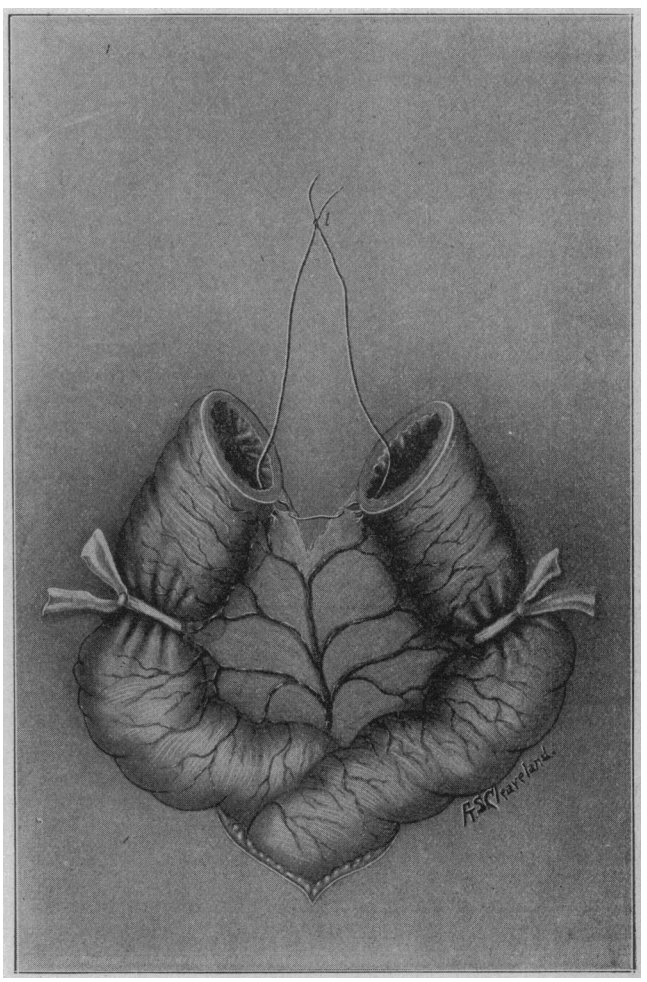

Plate 1.—The mesenteric, or suspending loop 1, in position; to insert which the needle with thread is passed through all coats and the V-shaped mesenteric space of each cut end. Its object is to bring this part of the mesentery and intestinal wall into perfect apposition, and thus secure a sero-serous approximation throughout the line of union.

Physical exploration of the chest was negative; uranalysis negative; her pulse ranges from 88 to 100; temperature normal, no history of recent chills nor sweating, bowels constipated, appetite poor, no irritation vesical symptoms.

April 18, 1900, the patient was prepared for an operation. An abdominal incision was made, and the large swelling which filled the entire left side of the pelvis, and which was buried in omental and intestinal adhesions was discovered. Because of the complicated condition of the tumor, and the unsatisfactory physical condition of the patient, it was determined to drain

the abscess through an incision in the vaginal vault, rather than attempt its enucleation. An incision was therefore made in the vaginal vault, the abscess drained and the abdominal wound closed. The patient made a very satisfactory and rapid recovery, and since the evacuation of the septic material in the abscess, the patient's general condition has rapidly improved. Her temperature immediately dropped to normal; her pulse dropped below 100, and with a ravenous appetite she began to improve in general nutrition.

Her bowels, since the operation, were in perfect condition until the night of May 5, when the patient complained of sudden onset of pain of a very excruciating

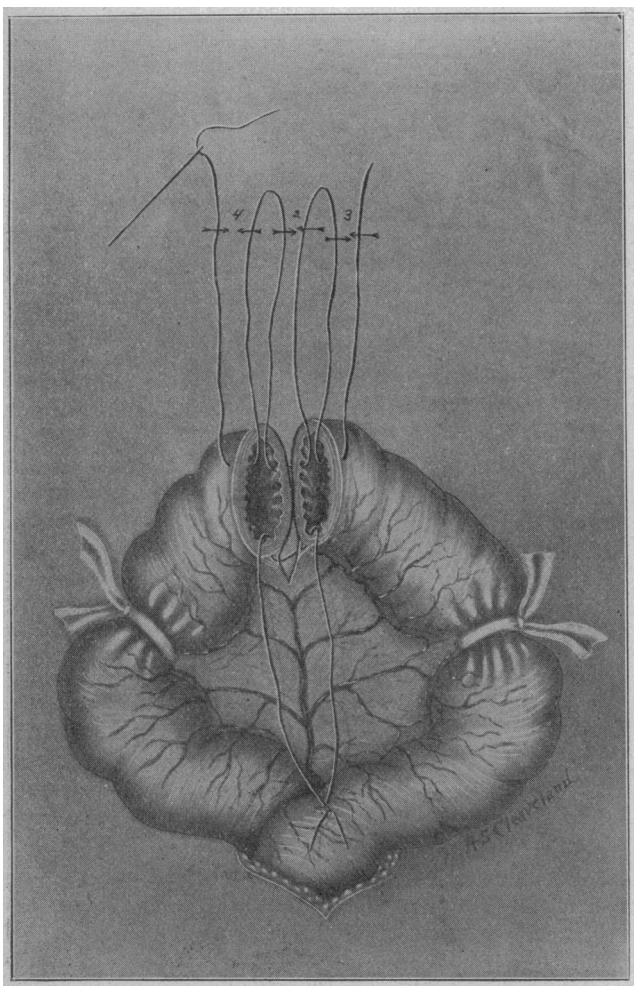

Plate 2.—Suspending loops 2, 3 and 4 are made with one thread inserted at a point two-thirds distance from mesenteric to convex border. The needle with suture is passed through the four walls of the cut ends, and that portion of suture within each lumen is drawn up to a sufficient length, then cut and the contiguous threads tied at the points indicated by the serous, thus having as a result four suspending loops, dividing circumference of each cut end into thirds.

character. She characterized it as that of intestinal colic. The pain did not cease with the application of heat and the administration of stimulants, and finally became so severe that one of the internes administered a hypodermic of morphia and atropia. While this benumbed sensibility somewhat, the pain continued. In about three hours the patient began to have eructations of gas, and in an hour or two began severe retching and occasional vomiting.

The pain and vomiting continued from that time. It was soon noticed by my assistant, Dr. Cooney, that the patient had not passed gas through the rectum or had a movement of the bowels since the afternoon of May 5. From the pain and vomiting acute obstruction was immediately suspected, and an effort was made to overcome the constipation. First, an enema containing glycerin two ounces, sulphate of magnesia two ounces, and water two ounces, with a dram of spirits of turpentin, was administered, employing for the purpose a tube which carried the enema about eighteen inches into the lower bowel. This stimulating enema, which in the previous history of the case had been very effectual in each instance, causing a free discharge of gas and fecal matter from the bowel, had absolutely no effect. The patient was then placed in Sims' position and a large enema of two quarts of soapsuds, with

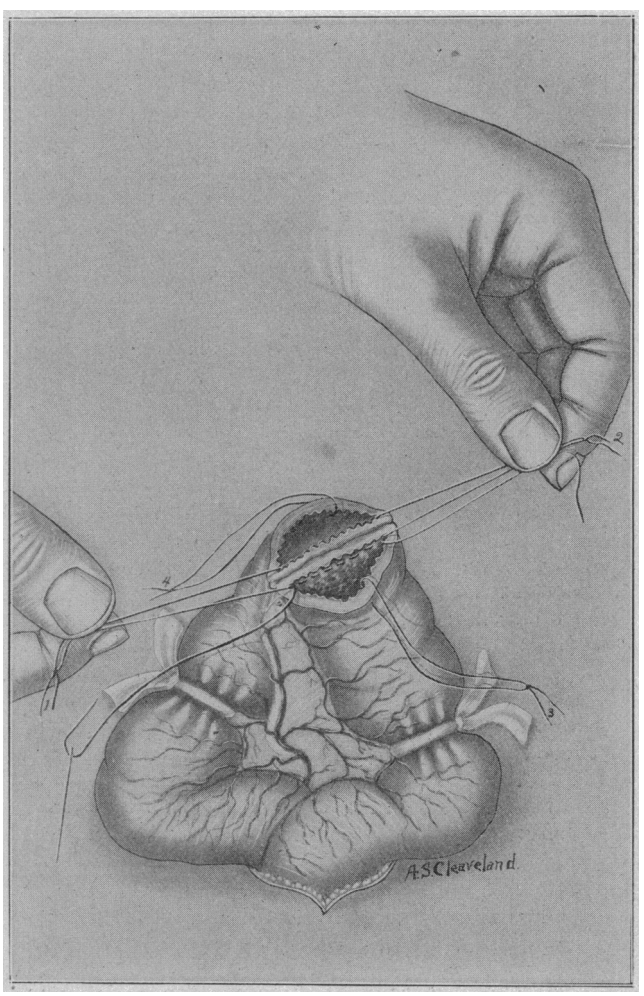

Plate 3.—Suspending loops 1 and 2, held by an assistant, bring into apposition the one-third of the intestinal walls between these two points. The needle (of suture proper) enters the mucosa from the lumen of one cut end, near loop 2, penetrates all coats of both walls, passes into the lumen of opposite cut end, where it is reversed and made to traverse again the intestinal walls, but in an opposite direction, parallel to, and about one-eighth of an inch from, the first half of the stitch just described. This first stitch is then secured by tying on the mucous membrane, and the free end of the suture not cut, but held by the assistant, with loop 2. The operator then unites the apposed walls with a to-and-fro, or running, suture until he reaches loop 1, where a back stitch is taken to prevent puckering.

four drams of spirits of turpentin, was employed, every effort being made to get the patient to retain the enema for some little time. After retaining the enema for a period of five or ten minutes, the patient was allowed to expel it, but here too again, there was absolutely no result as far as causing the discharge of gas or fecal matter. Later on, the patient was placed in knee-chest position and the large intestine filled with an enema of normal salt solution. More than a gallon of fluid was retained for several minutes. The

enema was finally expelled without result. During the time these enemas were administered, efforts were made to get the patient to retain a laxative, but the vomiting was almost incessant and the result nil. About six hours after the initial pain, considerable distension of the abdomen was noticed and, on percussion, tympanites. Twelve hours after the initial pain, the patient was observed to be in a condition of continuous shock; her temperature ranging from 96 to 97, and her pulse from 130 to 150. In order to sustain her strength and prepare her for an operation, should it become necessary, a pint of normal salt solution with an ounce of brandy was injected into the subcutaneous

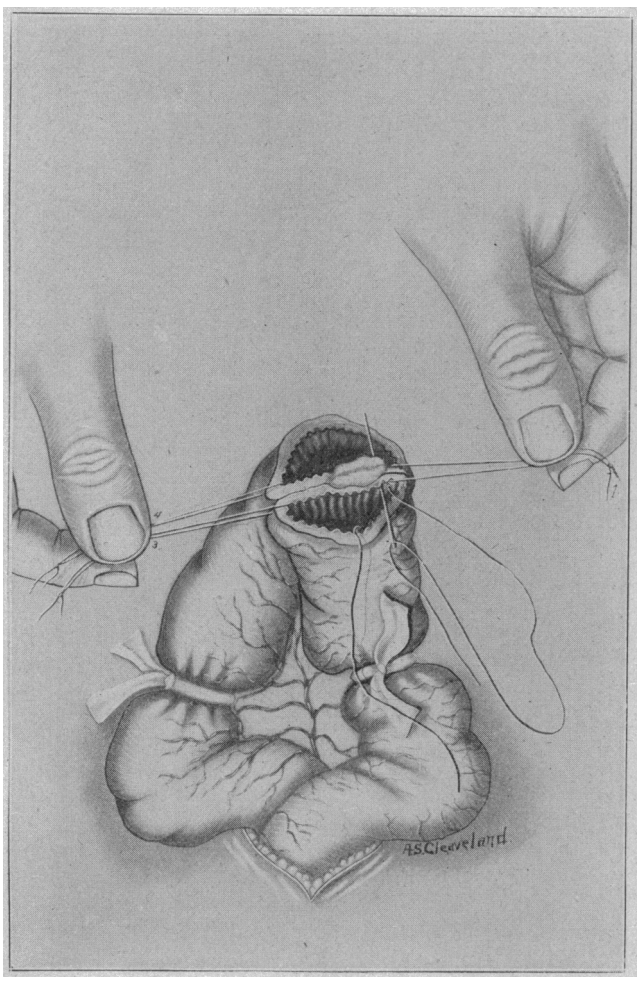

Plate 4.—Loop 2 has been cut away and loop 1 takes its place in the hand of the assistant, with loops 3 and 4 held in his other hand, thereby bringing into apposition that portion of the walls to be included in the second third of the suture. The operator continues the suture to the points of insertion of loops 3 and 4, where again a back-stitch is taken, to fix the suture and prevent a purse-string contraction of the same. The white elevation in the center of illustration, representing mesentery, shows that that portion of the intestinal wall not covered by peritoneum, at the mesenteric border, has been secured in the suture.

tissue beneath the breast. This caused the temperature to improve and range between 97 and 98. The pulse became stronger, slower and somewhat fuller. In four hours the transfusion was repeated. In the meantime, stimulating enemas of a character similar to those already described were administered to the patient in different positions for at least four hours, her general condition being in the meantime very carefully watched.

DIAGNOSIS.

Symptoms in this case pointed unmistakably to acute obstruction of the intestine; all classical symptoms pointed directly to such a condition: 1, pain; 2, vomiting; 3, constipation; 4, distension, and 5, collapse. The obstruction was undoubtedly either in the cecum or entirely above the large intestine, as the retained enemas were of large size, thereby demonstrating that the large intestine was empty. The obstruction was undoubtedly in the small intestines, probably rather high in the alimentary tract, inasmuch as the vomiting, which had been quite severe, had resulted in no fecal matter.

OPERATION.

After carefully watching the case for forty-eight

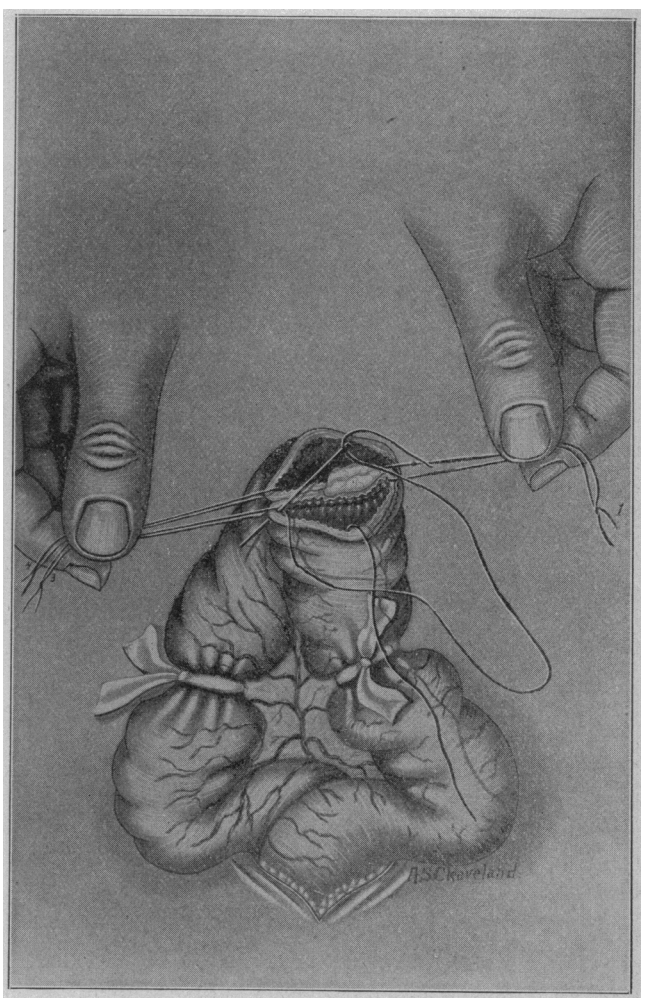

Plate 5.—At this point the needle for the first time is made to emerge from the lumen of the bowel, at a point corresponding to where the next stitch would be taken, and appears on the serous coat of one cut end of the intestine. Two-thirds of the circumference of the intestine have been sutured. Suspending loops are now cut and removed.

hours, after adopting all means ordinarily employed to overcome an obstructed condition, after thoroughly stimulating the patient into a condition of the highest possible tone, we felt that we were justified in making an abdominal incision, and attempting to locate and overcome the obstruction. As the woman had only recently had a laparotomy, a small incision in the abdomen immediately to the right of the recent abdominal wound was made, in order to be in a position to separate the intestines from the old wound, should the cause of obstruction be the result of adhesion of the intestine to the old line of incision. The omentum was adherent to the old wound. The intestines were more or less adherent and fixed to the anterior abdominal

wall and to the omentum, which was attached to the old wound. The omentum was separated from the anterior abdominal wound, and the coils of intestines exposed were also adherent to the omentum. They were large, thin and thoroughly distended with gas, indicating that they were portions of the intestine above the obstruction. By observing the coil of intestine directly beneath the wound, it was noticed that it was turned acutely on itself, and the two arms below the knuckle were closely adherent to the extent of about six inches. The adhesions between the opposing surfaces of the bowel were easily separated, but the fold of intestine remained distended, indicating that the gas did not pass on. There were several adherent coils, which, however, were easily separated. At a point low in the pelvis, small ribbon-like intestines resembling the ileum were observed; this was the portion of the small intestine below the obstruction. A band, around which a small intestine was twisted, required considerable force to break, and the intestine which was bound brought to the surface. As I considered it unsafe and unwise to unnecessarily manipulate the intestines, because of the low condition of the patient, a coil of the distended bowel was brought out and enterotomy performed, in order to give the patient temporary relief. A small knuckle of intestine was brought through the abdominal wound, and beneath the knuckle, through the mesentery, a sound was placed to prevent the intestine slipping back into the abdominal cavity. The sutures were inserted into the abdominal wound. A pair of clamps were placed about three inches apart, between which points the gut was opened. One portion of a Murphy button was placed in the intestine and coupled to the other half of the button, to which was attached a long rubber tube, the clamps loosened and the abdominal wound closed in such a way that the knuckle of intestine was free from pressure. No gas passed through the tube at first. This fact was very disappointing and extremely puzzling. Dressings were placed about the intestine in such a way as to form no constriction and the long tube buried in a liberal pad of loose antiseptic gauze.

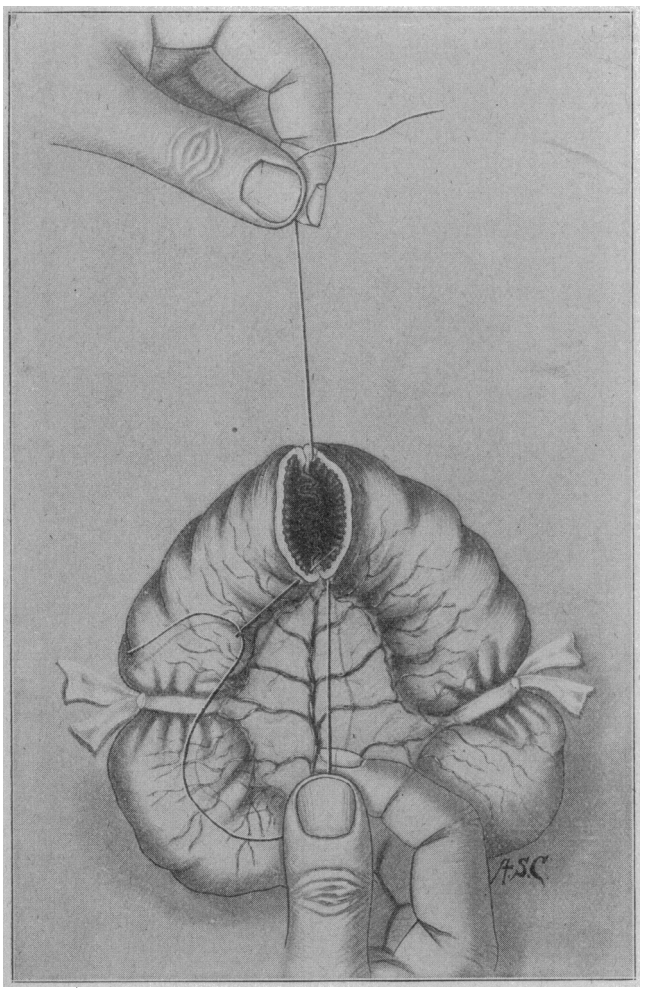

Plate 6.—There remains now only the last or convex-third of the walls to be closed. What was a complete section of the bowel has been transformed into a transverse incision, extending only one-third of the circumference, at the convex border. Owing to the impossibility of holding the divided edges of the last third in sero-serous apposition, and yet unite this third in the same manner as the previous two thirds, it is necessary to proceed somewhat differently to achieve this same result. The suture itself, being fixed at each end, can now be utilized as suspending threads, the free end in one hand of an assistant and the needle end, where it emerges from the bowel wall, in his other, while the operator is free to proceed with the suture. This he does by passing the needle from where it emerges on one cut end to the other cut end, there to be inserted, from without inward, at a point corresponding to that which would be pierced if the walls were in apposition, serous coat to serous coat.

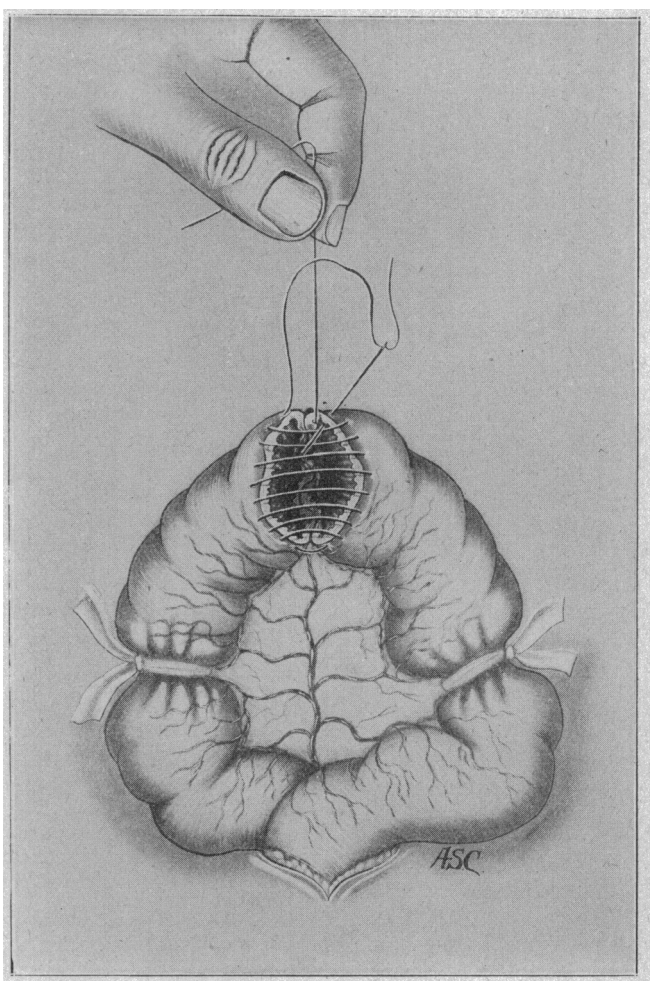

Plate 7.—The needle, after having entered the lumen, is passed out again on the same side, one-eighth inch distant; then over to the opposite cut end, where it is inserted from without in and again emerges from within out, on the same side. This step is repeated alternately on opposing margins until the necessary number of stitches have been inserted. It will be observed that when the needle enters the lumen the last time it makes what might be termed a half-stitch, as it does not return again *through* the wall, but having reached the point where the suture was commenced, the free end and the needle end will complete the last stitch, when tied, on the mucosa. The needle at this point is then brought out of the lumen alongside of the free-end of the suture. The cross-over stitches are next carefully drawn up, thus bringing into contact the apposing serous surfaces at every point except where the suture ends still protude.

Four hours after the operation, when she was fairly out from the anesthetic, gas began to pass by the anus. Directly after this a large amount of fecal matter was found in the dressings surounding the tube. Large movements of the bowels by the rectum, and a considerable flow of fecal matter from the artificial anus followed. Her temperature soon rose to normal, and her pulse reduced from 150 to 88. The condition of shock entirely disappeared. Three pints of normal salt solution were injected beneath her skin. The pain and vomiting entirely ceased. The patient was fed peptonized milk by the stomach. The subsequent results in this case showed that the obstruction of the bowel was relieved in the manipulation at the time of the operation and also proved that the enterotomy would have been unnecessary if we had possessed a sure method of ascertaining that the obstruction had been overcome.

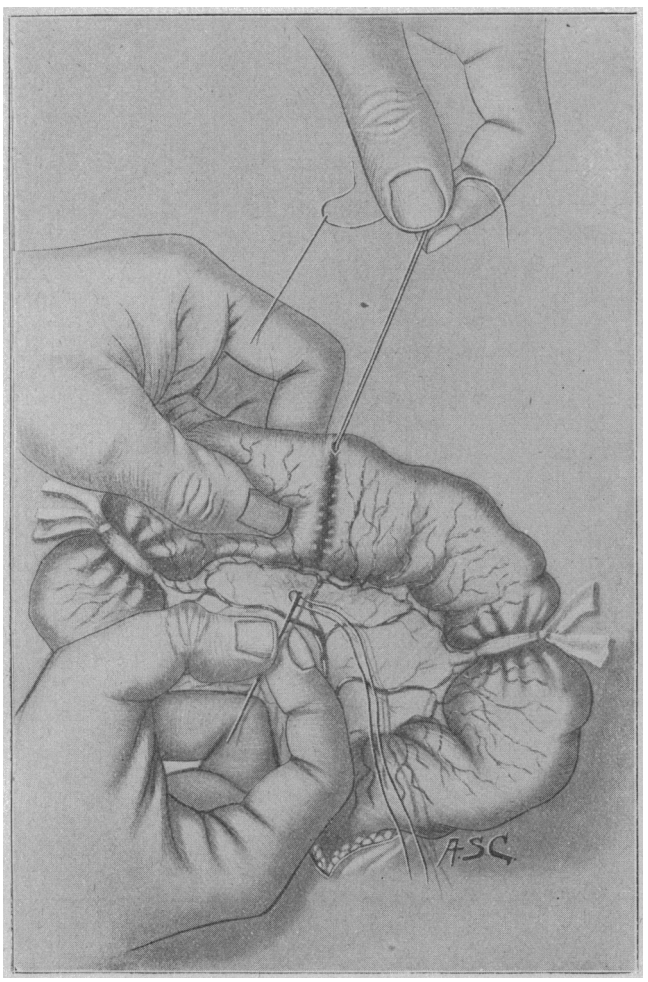

Plate 8.—The suture ends are held by an assistant, while the operator inserts the eye-end of a threaded needle between any two of the previously inserted stitches, preferably about opposite the point of emergence of the suture ends.

On June 1, 1900, I proceeded to restore the intestines as far as possible to their natural condition. The patient being anesthetized, the abdomen cleansed as carefully as possible, I inserted through the artificial anus into the caliber of the intestine in both directions, extending for about three inches, a packing strip of iodoform gauze. I then closed the artificial anus with a large pair of clamp forceps; the parts were then thoroughly disinfected, and I proceeded to open the abdomen by drawing a circular incision on either side of the knuckle of intestine projecting through the abdominal wound. I carried this incision on either side until I came to the intestinal tube at the upper and lower extremity of the incision and the mesentery near the center of the incision. Now, with great care, I proceeded to separate the knuckle of intestine from the abdominal wall, employing a sponge for the purpose of pushing aside the adhesions. Having accomplished this I found myself in the peritoneal cavity. Here, beneath an adherent omentum, was a mass of adherent intestine extending for a considerable distance. At first it was very difficult to outline any particular coil of intestine, and especially the one with which we were seeking to deal. I finally accomplished a separation and was enabled to eliminate several inches of the diseased intestine above and below the artificial anus. After freeing their adhesions and packing around the intestines hot-gauze compresses, I brought out through the abdominal incision several inches of the intestine to be operated on, and clamped either arm above and below the incision, and behind the gauze packing previously placed in the intestine with suitable clamps for keeping the intestine closed during the procedure which followed. The clamp from the incision, and the gauze which was placed in the intestine, were removed and as thoroughly as possible the por-

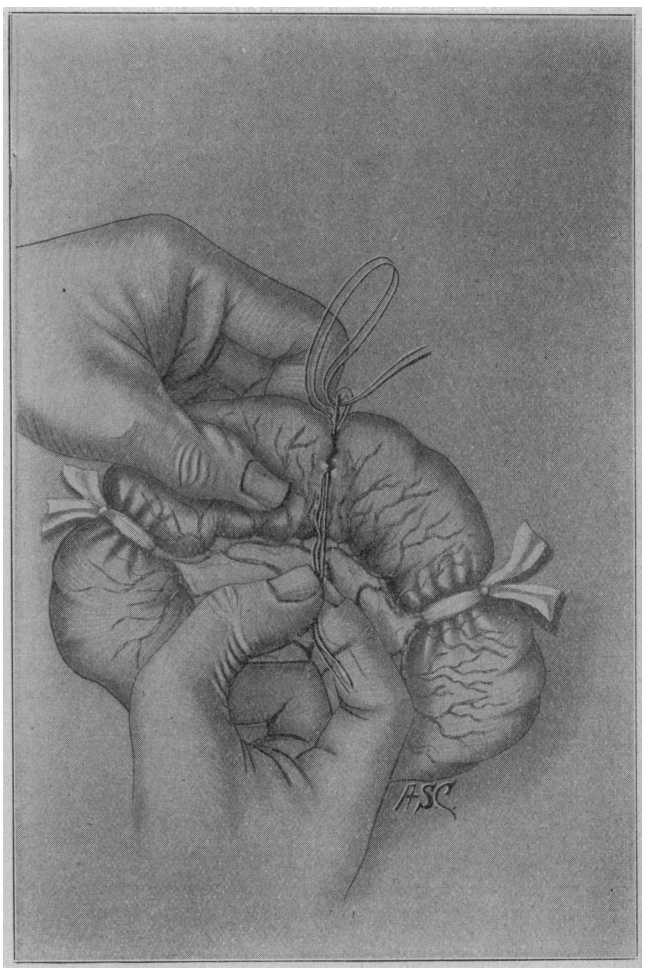

Plate 9.—The eye-end of threaded needle is made to emerge alongside of the suture ends, and is then withdrawn a little, which causes its thread to form a loop, through which the assistant passes the ends of the suture. The operator next withdraws the threaded needle, at the same time bringing with it the suture ends, and they present externally at the point of withdrawal of the needle. The serous coats throughout the entire circumference are now in apposition and the suture ends can be tied.

tion of intestine to be excised was cleansed by pressure between the liberal gauze compresses. Next, the intestine was excised to the extent of two or three inches on each side of the opening which formed the artificial anus, removing in all about five inches of the gut. The intervening mesentery was tied in three sections. The end of the intestine representing the portion of the gut above the artificial anus was larger than the coil below that point. An oblique incision of the smaller one was made in order to increase the diameter of its free end. This was done at the expense of its convex border. An end-to-end anastomosis, after the method described by Dr. F. G. Connell, of Chicago, was then

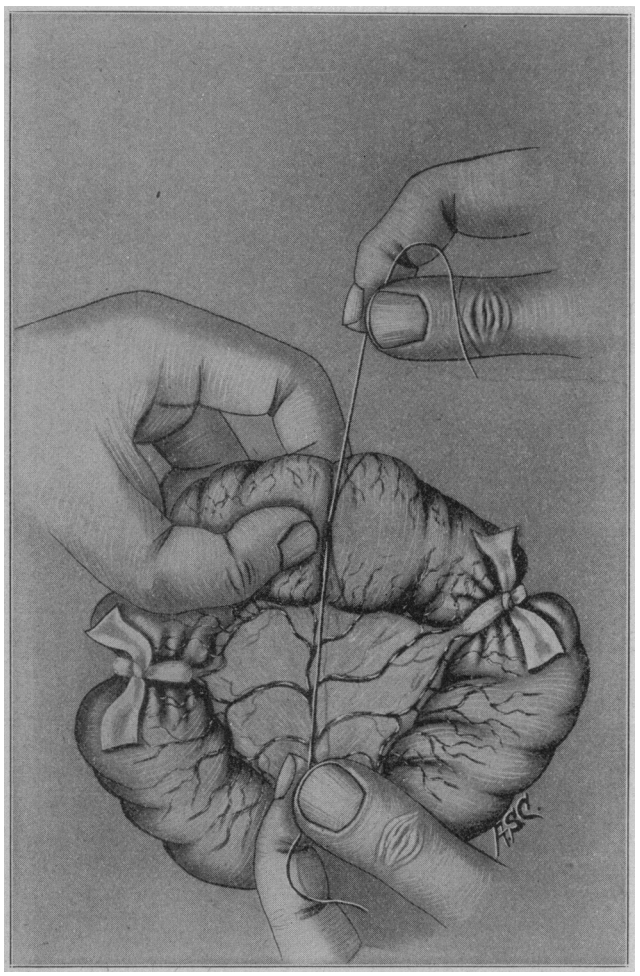

Plate 10.—By slight traction on the suture ends the opposing mucous surfaces are brought in close contact; the suture ends are then tied firmly, burying the knot deep between the serous coats, thus tying the knot upon the mucous coat and the ends then cut off short.

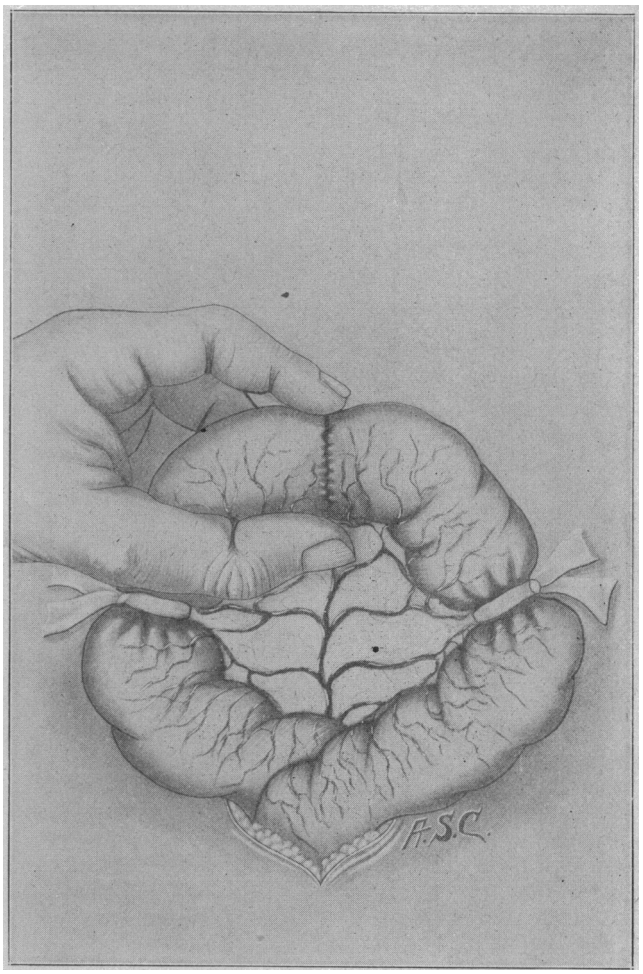

Plate 11.—The intestine, which has been flattened while tying the knot, is now relieved of pressure and allowed to assume its normal cylindrical contour, when the suture ends are seen to slip within the lumen; the enterorrhaphy complete, all knots inside, no stitches visible on the outside.

accomplished. This method is easier to execute than to describe, and I would suggest that the method be practiced on the dog, as while the method is somewhat difficult to understand from description, it is extremely easy to execute. The method consists of a modification of Maunsell's procedure, the original feature of importance being an ingenious method of tying the last suture in a way which effectually places all knots on the mucous surface of the bowel without the necessity of making the ordinary extra incision employed in Maunsell's operation. (See illustrations.)

When the operation is finished, the intestine has very much the appearance of one after an end-to-end anastomosis with the Murphy button. While the sutures included all coats of the bowels, no sutures were visible between the approximated serous surfaces. This operation seems to me to have all the advantages of the Murphy button, with none of its serious faults. The abdomen was closed after dropping the intestine, and a small wick of iodoform gauze was left for drainage. The patient, after thorough stimulation, having received a pint of normal salt solution subcutaneously, was sent to bed. The actual time consumed in the anastomosis was between fifteen and twenty minutes, and was done with great deliberateness.

I have to thank Dr. Connell for his very kind assistance during the operation, and for his timely suggestions at different times. Dr. Connell informs me that he has no record of the operation having been done before on a human patient. The operation has been done many times on the lower animals, almost uniformly with perfect results.

The following note of the subsequent history of this case is appended by my assistant, Dr. H. C. Cooney:

The patient was returned to her bed with normal temperature, pulse 128; respiration, 28. Subcutaneous transfusion of a pint of normal salt solution under each breast. No vomiting followed the anesthetic, the small gauze drain carried down to the sutured bowel was removed in forty-eight hours, and the provisional sutures were tied, which closed the abdominal incision entirely. Some flatus passed per rectum after twelve hours. No attempt was made to move the bowels for sixty hours, then a small stimulating enema of glycerin, magnesium

sulphate and water—one ounce each—was given under low pressure; this was repeated every twelve hours.

There was no nausea, and the abdomen was only moderately tympanitic. Flatus was expelled with the return of the first enema and seventy-two hours after operation a normal bowel movement was obtained.

From this time on, her clinical history contains nothing of especial interest, as her convalescence was uninterrupted. She gained rapidly in strength, flesh and color.

A blood examination made June 20, five days before her departure from the hospital, showed: Hemoglobin 78 to 80 per cent.; red blood-corpuscles per cubic millimeter 3,910,000; leucocytes 8000 per cubic millimeter. Appetite was good, and bowels were regular.

RECEPTIVE QUIESCENCE OF THE STOMACH DURING MASTICATION.

GASTRONOMIC PHENOMENON NOT PREVIOUSLY DESCRIBED.

EVAN O'NEIL KANE, M.D.

KANE, PA.

The muscular coat of the stomach is inactive during mastication. This appeared clearly demonstrated as a physiological fact in a patient on whom I recently performed a gastrostomy. The patient was gradually starving from stricture of the esophagus due to a cancer at the cardiac orifice of the stomach. I operated in order to introduce food directly.

A large part of the posterior wall, as well as the cardiac extremity of the stomach, proved to be involved in the carcinomatous mass, thus greatly reducing the capacity of the viscus. Great difficulty was at first encountered in introducing more than a very small amount of fluid-food at a time, as it was promptly rejected through the peristalsis thus evoked. The question arose: How can a full meal be introduced and the retaining pad replaced over the opening before it can be regurgitated? The solution of the difficulty was arrived at by the very intelligent nurse, who observed that if the patient was chewing anything while being fed—for his appetite was ravenous and he fancied that he slightly appeased it by chewing morsels of food—his stomach would remain quiet, thus allowing her to fill it and secure the retaining pad before muscular activity recommenced. The difficulty with this additional mouth-feeding was that the patient could not be trusted not to swallow what he held in his mouth. This food, lodging in the dilated lower part of the gullet, decomposed and was with difficulty withdrawn. Chewing gum was substituted for food and no further trouble was encountered from this source.

If the state of receptive quiescence above described were a common physiologic phenomenon it would seem strange that no one has as yet observed it. It is possible, however, that in this case the greatly reduced internal capacity of the viscus made the muscular contractions more apparent than they would have been in other cases where gastrostomy has been performed.

Material for reflection is afforded if, as I presume, this condition which I have termed "receptive quiescence" is common in healthy as well as morbid conditions of the stomach. Thus, it would be suggested that mastication of an inert substance after meals might prove beneficial where the stomach is over-active, or prejudicial where there is atony.

Here, the chewing-gum habit should be considered. Again, we might thus explain the injurious effect on the stomach digestion of infants of permitting them to retain the nipple in their mouths after nursing, or of letting mothers quiet their babies with a sugar-teat, or a "delight," as they call the mock nursing apparatus sold for quieting restless children. Seasickness, unless extreme, is often benefited and the tendency to vomit prevented as long as something is being chewed. How may we apply this principle to the vomiting of pregnancy? These women frequently find relief from chewing or sucking a lemon rind.

The beneficial influence of vinegar inhalations on the nausea following anesthesia may be due to the excitation of the salivary glands by the acid fumes.

I regret that I was unable to ascertain what effect mastication had on the gastric secretion.

[Mastication stimulates reflexly the salivary, gastric, and pancreatic glands. The liver is also stimulated, as shown by experiments, but this is not so conclusive as the stimulation of the stomach and pancreas.

The motor power of the stomach usually acts by the same stimulation that provokes secretion. The marked movements of the stomach, observed by Dr. Kane, were due to the action of the abdominal muscles and the diaphragm in the same manner as the muscles involved in vomiting, and chewing may have produced a condition that withdrew the stimulation from these muscles. This is especially proved in his illustration of vomiting, as vomiting is chiefly an extragastric muscular effort. The stomach muscles are too sluggish in their action to take much part in the act of vomiting. The anxiety and hunger of the patient might, and probably did, cause his abdominal muscles and the diaphragm to contract and expel the food from the contracted (small) stomach.—ED.]

Prophylaxis Against Venereal Disease.—The International "Prophylaxis Congress" last year established a permanent committee for sanitary prophylaxis of venereal diseases and propagation of morality. The Belgian minister of state, Le Jeune, is president, Dr. Beco, vice-president and Dr. Dubois-Havenith, secretary. The aim of the committee is to found an international society for the study of the hygienic and moral questions which can serve in the prophylaxis of venereal diseases. The constitution and by-laws of the new society have already been formulated and the central committee is appointing national and state sub-committees. Physicians and all other persons who, by their writings, their occupation or their special knowledge are qualified for efficient co-operation, are invited to become members of the society. The annual dues are $5. An official organ is to be published three times a year. The secretary, 19 rue du Gouvernment Provisoire, Brussels, Belgium, is glad to answer questions and receive suggestions at any time.

Can Valvular Lesions Be Cured?—Petrovitch has been studying for ten years the possibility of recovery from valvular lesions, carefully following all patients with endocarditis and organic affections of the heart. He stated at the International Medical Congress that in seven of these cases the mitral or aortic insufficiency had completely disappeared in ten months to three years after the commencement of the symptoms. They had persisted at least six months with the usual physical signs and functional symptoms of cardiac affections. Treatment was merely the prolonged administration of potassium iodid in small doses with intervals of repose and the application of dry cups to the precordial region. The *Progrès Médical* adds to its abstract of his communication that Rendu has observed two cases of recovery from valvular lesions and Potain one.